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Notes on migratory Plants

By E. J. Hill

It is always instructive to study the incoming and habits of introduced plants. This is especially true of those that have become troublesome weeds or may be such if the conditions favor their development. Some of those to be mentioned may be transient visitors, or if persistent, harmless or acceptable additions to the indigenous flora; others are of a very different character. Those are chiefly noticed which have proved of the most interest, and the list does not claim to be complete. Chicago being so great a railroad center, where cars loaded with grain and stock come from so many places to the westward, and from which dump is taken to outlying districts, provides a region with added facilities for the appearance of foreign plants. Among harmless kinds are the following:

Convallaria majalis, L. In the spring of 1899 this was found in the dune region near Miller, Ind. The conditions were such as would have led to the conclusion that it was indigenous had I not frequently been in the locality for several years before, or had found it more abundantly. It was remote from any dwelling where such a plant might be cultivated, in a hollow among the sand hills. I was looking for *Cypripedium acaule* which grows in the locality in just such depressions, and was surprised to find in one of these, hidden among the jackpines, the lily of the valley. The plants were beginning to bloom, it being the middle of May. In such locations the sands are somewhat moist and the ground considerably shaded. The plant most abundantly associated with it was *Maianthemum Canadense*, and the *Convallaria* was as much at home and seemed as flourishing as these. It would be a puzzle to tell how it came to so wild and little-frequented a spot if introduced, as I suppose it must have been.

Cassia Tora L. This was obtained the same season beside a railroad track at Barrington, Ill., about thirty miles north of Chicago. This is quite a distance north of its ordinary range. The pods were well formed, but it was so late in the season, Sept. 21, that it was doubtful if seeds would ripen.

MENTZELIA NUDA (Pursh) Torr. & Gr. An example of this plant of the western plains was found last summer beside the track of the Santa Fé railroad, just west of this city. This would point to the line of its introduction. The handsome flowers were nearly two inches in diameter.

ERYTHRAEA PULCHELLA (Sw.) Fries. A single specimen of this European plant was detected late in the fall of 1900 among some *Brachyactis angulatus*, an introduction from the West which flourishes along the sides of unpaved streets at South Chicago. Last summer the little centaury plants were observed in great abundance in neighboring pastures and commons of the prairie. It was growing in the short grass like a native to the soil, and had the appearance of having always been there. The soil is sandy, naturally damp or even wet, but now dry for most of the season on account of drainage. It occurred in both dry and moist locations, since the minute seeds are produced in countless numbers. It is well adapted, though an annual, to hold its place and spread rapidly.

LACTUCA PULCHELLA (Pursh) DC. This native of the North and Northwest was found last summer beside a railroad in the western margin of the city. The plants were scattered along the edge of the roadbed for several rods, in a place where it was subject to hard usage, which it seemed to endure well. As it was seeding freely and had this habit, it seemed likely to persist.

BROMUS TECTORUM L. In an article in the Bulletin of the Torrey Club (June, 1899), I reported this as occurring beside a railroad east of Chicago, in the dune region of Indiana. It was first observed in 1897 in a single locality. Since then it has spread extensively and now appears along the road in spots for several miles. In some places the grass forms dense plats covering several square rods, but is mostly confined to ground within the railway inclosures. It flourishes finely in the sand, especially if a little damp, or quite moist in the spring. In such locations it attains a height of 12 to 18 inches. With its nodding panicles it is not an unseemly plant for a railroad wayside. But its rather early fruiting and drying up expose it to fires from passing trains, though the seeds readily renew it annually.

HELIANTHUS PETIOLARIS Nutt. This was mentioned in the same article as growing along railroads both east and west of Chicago. I saw it first in 1897. It keeps its place in localities which it frequented then and has since considerably extended its range. It readily takes root in the dry soil of the railway embankments, sending the root down quite deep for an annual, and from its low habit escapes the destruction that is apt to befall taller plants by the trackmen. As yet it seems confined to such localities.

HELIANTHUS ANNUUS L. The form from the western plains is the one here meant. I noticed it first in 1891, west of the city. It was growing in the dump from stock-cars thrown out in piles along the railway tracks. The following year it was seen growing under similar conditions east of the city. It still continues most abundant in the same kind of habitat, but of late I have met with it in fields, competing with indigenous species more common to such localities, such as *H. grosse-serratus*, *H. giganteus*, *H. doronicoides*. These being perennials keep their ground where the soil is not much disturbed by means of their tuberous rootstocks, plentifully produced, and line the fence-rows and field-borders in cultivated areas. But where the soil has been disturbed, and especially if left unused for a little while, *H. annuus* seems the more agile plant and comes in, to make extensive patches sometimes. The larger leaves and flowers make it a more conspicuous plant than the native kinds, which it equals in height. Sometimes a few clumps or some scattered examples of the garden escape appear among them or in close proximity, and the stems, commonly taller, and the larger flowers, bring them into contrast very effectively. The western sunflower has become a weed, but is so easily destroyed and confined to unused stations that it can hardly be called troublesome.

GRINDELIA SQUARROSA (Pursh) Dunal. Possibly the same cannot be affirmed as to the inoffensiveness of this and the plant next following. The gum-plant was reported as occurring here in 1891, being found at South Evanston, just north of Chicago. Since then it has been found in other localities, generally beside railroads. Last summer I came across it in stations relatively remote from railway tracks, and growing under conditions that led to the thought that it might become an unwelcome denizen of pastures.

These stations were in the southern part of Lake county, Ill., at Lake Zurich and near Barrington. Two considerable patches were seen in pastures and some examples by roadsides. Those found in pastures were the most instructive, and at Lake Zurich were carefully examined, where the patch was of four or five square rods in extent. As the season had been very dry and the land chiefly used for dairying, the cows had cropped the pastures close, taking about everything edible. But the *Grindelia* seemed untouched and flourishing, and being in flower in early September made a fine display of golden yellow amid the parched surroundings. The grass which grew among it had been picked out and nibbled off close up to the stems. The only hint of service was apparently experimental, for some of the plants showed by their branching that the main stem had been taken off at an earlier stage of growth, and the most probable explanation was that the animal had tested something unfamiliar, and finding the gummy, bitter plant unpalatable afterward left it quite alone. If allowed to grow and ripen the seed, as some heads were already mature, a good crop would be furnished for the coming year.

SISYMBRIUM ALTISSIMUM L. As this has been found more common in the vicinity of Jackson Park, the opinion has been expressed that it was introduced to this region at the time of the Columbian Exposition in 1893. But from other collectors I learn of its appearance in the vicinity of Chicago about 1890 at least. It now occurs in various places, sometimes a tall branching weed, as the name indicates, at others low, subglobose, widely branching, of a habit that suggests a good tumble weed. I have seen it chiefly in the latter form, but have not caught it discharging the functions of a tumble weed, which the shape and rather stiff branches would enable it to do if detachable from the ground. Vast number of seeds are produced on these thickly set branches.

MELILOTUS ALBA Desv. The rest of the plants to be noticed are the troublesome kinds, some of long standing, others of more recent introduction. Among those whose behavior has most interested me is the white melilot, the sweet clover of our mothers' gardens. For a dozen or more years I have seen no weed make greater progress in overrunning waste grounds. It seems strange that a plant I knew in childhood as a harmless garden-flower, a bunch of which grew by the side of nearly every farmhouse, should have become so troublesome. I have since seen it flourishing by waysides in localities where it was then known chiefly as a flower, but nowhere in such abundance as it shows here. Acres of the weed can be seen in the waste ground along the drainage canal and railroads running parallel with it, as well as on the débris of the numerous quarries of limestone. City lots whose soil is in any way disturbed are apt to be stocked with it. As it can attain a height of six or seven feet—three or four feet being a common height, and branching freely—it soon overshadows the more humble plants and becomes the one in possession almost exclusively. In richer soil, especially of bottom lands, its most important competitor is the great ragweed, *Ambrosia trifida*, which grows higher and is apt to supplant it. Being often xerophytic in habit it frequents dry localities, such as hard clay hills and banks, rubbish-heaps of limestone chips and intermingled dirt from quarries. It is a common weed between the grassy border of a highway and the well-beaten track, where the ground is sufficiently disturbed to permit its seeds to germinate but not enough used to destroy the plants. It readily takes root on a hilly slope or bank on which the rains cut out gullies, washing away the soil so as to prevent less hardy plants gaining a foothold. Here in a sense it may serve a useful purpose in holding the soil or preparing for other growth.

AMARANTUS BLITOIDES Watson. This is one of our most persistent weeds. As nearly as I can learn it appeared in the vicinity of Chicago early in the seventies. I saw it first in 1875, after it had become well established, but not covering any great area. Since that time it has spread extensively and become common, particularly along waysides and railways. It bears a great deal of trampling, and grows where it is subject to very hard usage, much like the knotgrass, *Polygonum aviculare*. Being prostrate, it cannot be mown down like the white melilot, but must be pulled or dug up. It is now the most common of our amaranths except in cultivated ground, where the tumble-weed, *A. graecizans*, is better adapted to the abrupt and frequent disturbances of soil due to cultivation. The prostrate plant cannot take advantage of the wind for dissemination. It is often quite troublesome in lawns, rooting in any spot where the grass is thin, or at the inner edge of the curbstone, the stems creeping in the grass too low to be reached by the lawn mower, or hanging over the edge and perhaps rooting in the gutter if not disturbed for some weeks. It is not uncommon to find mats in favorable situations with stems three or four feet long.

SALSOLA TRAGUS L. This was reported from this region in 1890 or a little before. I have carefully watched it since first seeing it about that time, for the notoriety it had gained in the Northwest called particular attention to it. During this interval it has spread throughout our area, but is not as conspicuous or hardly as plentiful as it was four or five years ago, since it spread very rapidly at first. It is now a common weed of waste ground, struggling with others found in such associations. No systematic effort has been made to exterminate it so far as I have seen or been able to learn. First appearing most commonly along railroad lines, it shares the lot of other growth removed by the trackmen. Little is seen along country roadsides or in cultivated fields. In some vacant lots not far from my dwelling, where the soil was considerably exposed by the plotting of streets and construction of sewers but not occupied for residence, it became abundant soon after making its appearance there, but has since mostly disappeared. Here it was left to natural conditions and no effort was made to get rid of it. It was a dry, sandy soil, and such grasses as *Festuca tenella* and *Sporobolus vaginaeflorus* and plants of similar habit proved more than a match for it. I do not think it will be the troublesome weed under such conditions of cultivation as prevail in the Atlantic States as we were led to expect, or that eastern farmers need to be much alarmed by the inroad of the Russian thistle. It will add another to the list of weeds to be contended with and take its place among the rest, no more burdensome in some respects than others, mainly troublesome when the leaves and branches become stiff in late summer and autumn, and by its ability to be rolled about by the wind, and lodge in obstructed corners. The individual plants are now on the average much smaller than at first, less branched and more upright in growth, and, consequently, less favorably adapted to rolling. Their form changes as they are crowded by other plants, of which they get the start by their superior ability to spread, but with which they must subsequently contend; or because the plants, when the ground is well stocked with seeds, come up thickly and crowd one another. It is probable, too, that it loses in vigor under less favorable conditions. It stands no chance whatever in maintaining itself against a growth of the common grasses.

LACTUCA SCARIOLA L. I noticed this first in 1885. It was infrequent then, but has since become one of the most common weeds, more generally diffused than *Salsola Tragus*. Its copious pappus permits its easy propagation, and like the dandelion it springs up in pastures and meadows as well as in waste ground. But as stock devour it when tender, little comes to maturity in pastures, but more in meadows and the neglected parts of cultivated fields. Its stiff and rather prickly habit make it more repulsive when grown, but even then the leaves are eaten.

CHICAGO, ILL., April 1902.